Control Number :	GOOG-DOJ-AT-02480384
All Custodians :	Google
Custodian :	Google
Date/Time Created :	10/5/2021 12:44 AM
Date/Time Sent :	
MODIFICATION DATE :	10/5/2021 12:44 AM
File Name :	Poirot_v3_Methodology.docx

Executive summary

In Poirot v3, we add a binary feature is_video_request to the Poirot model. This is a query-level feature identifying requests for video ads. This helps us bid appropriately aggressively for video inventory on 3PE.

Key experimental results: surplus increase on 3PE (+0.27%), post-budget revenue increase for video ads on 3PE (+7.96%), small decrease in DBM net revenue (-0.06%) driven by shift in spending from AdX to 3PE.

Commented [1]: Just to confirm - this means the request itself is from a video context, as opposed to the request is asking for a video ad?

Commented [2]: It means the request is asking for a video ad.

Context

Poirot is a project which uses experimental bid reductions to infer the optimal bid multiplier on exchanges which are not running pure second-price auctions.

Currently we optimize the Poirot bid multiplier for each exchange, without distinguishing video vs. display. However, bidding dynamics are different for video ads; video is more inventory-constrained and bids tend to be higher. By doing separate optimizations for video and display, we can correct for this and win more video impressions.

See the original design doc for Poirot here. See this doc for info on the updated model.

Commented [3]: given the launch candidate is video_only, can you have a separate doc where you only focus on the video only signal

Commented [4]: I'm editing this doc to remove references to the other model (non-launch candidate). I've added a copy of the original version of the doc under "Links".

Links

Metrics Doc
Domain-level analysis
Post-budget revenue calculations
Old version of this doc (with both proposed models)

Modeling Solution

However, we fit the model and solve the associated optimization problem for each 3-tuple (exchange, auction type, is_video), rather than for the pair (exchange, auction type).

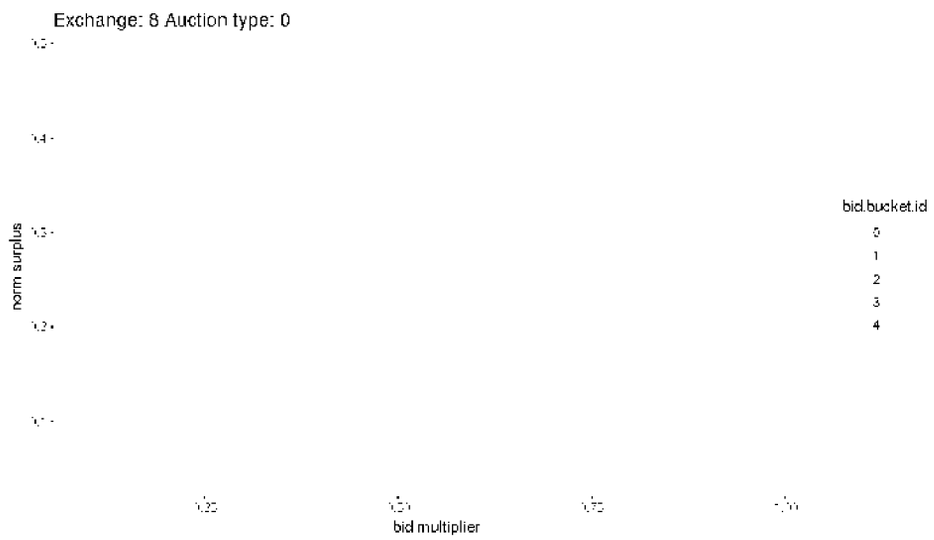
The optimization problem is done here.

Updates to Serving

[redacted]

Case study: Rubicon

Here are the [redacted]



In version B of the new model, we fit separate curves for video and non-video, resulting in more aggressive bidding for video and less aggressive bidding for non-video. This is shown below.

Exchange: 8 Auction type: 0 Is video: FALSE

Exchange: 8 Auction type: 0 Is video: TRUE